

REMARKS

The Official Action of April 5, 2005 has been carefully considered and reconsideration of the application as amended is respectfully requested.

Claim 1 has been amended with the incorporation of recitations formerly in claims 2, 5 and 8, and claims 2, 5 and 8 have been canceled. Claim 9 has been amended to recite the step of providing the fully vulcanized powdery rubber and to incorporate recitations formerly in claim 15, and claim 15 has been canceled. Applicants respectfully note that not all recitations from claims 8 and 15 were incorporated into claims 1 and 9 respectively. Specifically, claims 1 and 9 do not recite that the claimed rubber comprises ethylene-propylene rubber. Rather, the claims require that the rubber phase of the claimed vulcanized thermoplastic elastomer be selected from the presently recited group of rubbers, which does not include ethylene-propylene rubber.

New claims 23 and 24 have been added more completely to define the subject matter which Applicants regard as their invention. Claim 23 is a product-by-process claim which tracks the recitations formerly in claims 1, 9 and 15. Claim 24 uses the “consisting essentially of” transitional to exclude from the respective starting materials a blend of unvulcanized rubber and plastic. (Note: the present specification describes at, for example, pages 2-3 the undesirability of carrying out vulcanization during blending whereby to make clear that such a blend in the starting materials would adversely affect the basic and novel properties of the

claimed invention (see MPEP Section 2111.03)).

Certain claims stand rejected under 35 USC 102(e) as allegedly being anticipated by Qiao et al (paragraph 7 of the Official Action), and certain claims stand rejected under 35 USC 102(e) as allegedly being anticipated by Angus et al (paragraph 8 of the Official Action). Applicants submit herewith an English translation of their Chinese priority application (CN 00109220.0) along with a translator's statement as to the accuracy of the translation, and respectfully submit that the cited art is not effective as a reference against the claimed invention by virtue of the earlier filing date of the priority application. Accordingly, Applicants respectfully request that these rejections be withdrawn.

Claims 9, 10, 15 and 16 stand rejected under 35 USC 102(e) as allegedly being anticipated by Sahnoune et al (paragraph 9 of the Official Action). First, Applicants respectfully note that, in view of the June 15, 2000 filing date of their priority application, the cited art would only be effective as a reference under 35 USC 102(e) if the earlier application from which Sahnoune et al claims priority (US provisional application 60/182,852) describes the claimed subject matter in accordance with the provisions of 35 USC 112, first paragraph (see MPEP Section 706.02(f)(1)). As next discussed, the amendments to claim 9 are respectfully believed to remove the basis for the rejection in any event, but in the event the Examiner considers that they do not, Applicants respectfully request a copy of the US provisional application and an explanation of how it satisfies such requirements.

Applicants respectfully submit that the amendment to claim 9, which requires the provision of a fully vulcanized powdery rubber **prior** to the blending step removes the basis for this rejection. Applicants respectfully submit that the cited reference, which teaches a process of dynamic vulcanization, cannot properly be interpreted as describing the provision of a fully vulcanized powdery rubber **prior to** blending. The Examiner contends at page 12 of the Official Action that full vulcanization is achieved at some stage of mixing in dynamic vulcanization and that, from that point on, blending of fully vulcanized rubber and plastic is achieved. It is respectfully submitted that this is a strained interpretation of the reference teachings and would not satisfy the claim recitations. Even assuming for the sake of argument that it did, Applicants respectfully submit that the reference would not meet the limitations of claim 9 which require, among other things, the recited weight ratio of fully vulcanized rubber to plastic. The reference would *a fortiori* not meet the limitations of claim 24, which preclude a blend of unvulcanized rubber and plastic as discussed above.

Certain claims stand rejected under 35 USC 102(e) as allegedly being anticipated by Kawazura et al (paragraph 10 of the Official Action). Applicants respectfully traverse this rejection.

Kawazura et al disclose a thermoplastic elastomer composition prepared by dynamic vulcanization (see Kawazura et al at col. 34, 1.30-56 and col. 37, 1.33-37). It is well known in the art and as carried out by Kawazura et al (Kawazura et al at col. 34, 1.30-56) that in a dynamic vulcanization process, an unvulcanized rubber is melt blended with a thermoplastic

resin in the presence of a vulcanization agent of the rubber. During the melt blending, the rubber composition is dynamically vulcanized, and forms vulcanized rubber phase dispersed in the plastic.

In the course of dynamic vulcanization, the rubber component and plastic component in the blend continuously alter their phase state under blending shearing action with the proceeding of dynamic vulcanization. At the initial stage of the blending, since the rubber is not vulcanized and comprises a relatively large proportion, the rubber phase is the continuous phase, and the plastic phase is the discontinuous phase. With dynamic vulcanizing, cross-linked structure is formed in the rubber component, and the rubber phase having cross-linked structure is divided into fine particles dispersed in the plastic phase by mechanically shearing action. At this time, the vulcanized rubber phase forms at least partially a discontinuous phase, and the thermoplastic phase forms at least partially a continuous phase.

By further mechanical shearing action, the rubber as the discontinuous phase is further lowered in particle size, to form particulates dispersed in the plastic as the continuous phase, and thus the desired thermoplastic elastomer is obtained. Therefore, the vulcanization of the rubber phase in the thermoplastic elastomer produced by dynamic vulcanization proceeds dynamically under high mechanically shearing action. As a result, the rubber phase dispersed in the plastic phase is of irregular shape (as indicated in the initial description of the present application at page 3, lines 1-2). This is inherent in dynamic vulcanization and is determined by the process of the dynamic vulcanization method itself.

In contrast, the amended claim 1 recites “the shape of the rubber phase of said fully vulcanized thermoplastic elastomer is spheroidic”. Therefore, Applicants respectfully submit that the newly amended claim 1 as well as its dependent claims is novel and non-obvious from Kawazura et al.

In addition as mentioned above, Applicants have amended claim 9 so that it recites the step of providing a fully vulcanized powdery rubber. Therefore, Applicants respectfully submit that the newly amended claim 9 as well as its dependent claims are novel and non-obvious over Kawazura et al.

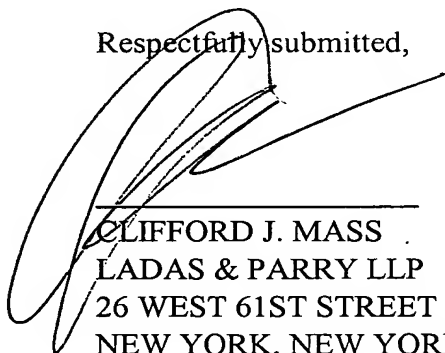
Certain claims stand rejected under 35 USC 102(b) as allegedly being anticipated by Ottawa et al (paragraph 11 of the Official Action) and Ueda et al (paragraph 12 of the Official Action). Applicants respectfully submit that the amendments to the claims, which require that the recited rubber phase of the claimed elastomer include a rubber selected from the recited Markush group, distinguishes the claimed invention from the cited art. As next discussed, neither of the cited references shows or suggests that the recited rubber phase comprise a rubber from the Markush group recited in the claims as amended.

Ottawa et al disclose a fine particulate cross-linked amorphous ethylene/ α -olefin/polyene copolymer, and said fine particulate cross-linked rubber is prepared by the specifically described method. Ueda et al disclose rubber particles comprising a hydrogenated block copolymer of a conjugated diene and a vinyl aromatic compound having a micro-phase

separating structure. Neither reference shows or suggests a rubber from the claimed Markush group. In this connection, Applicants respectfully note that a hydrogenated block copolymer of a conjugated diene and a vinyl aromatic compound, as disclosed by Ueda et al, is different from the recited styrene-butadiene rubber of the claimed Markush group.

In view of the above, it is respectfully submitted that all rejections and objections of record have now been overcome and that the application is now in allowable form. An early notice of allowance is earnestly solicited and is believed to be fully warranted.

Respectfully submitted,

A large, stylized handwritten signature in black ink, appearing to read 'Clifford J. Mass', is written over the typed name and address.

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